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CONTENTS

Poultryman Licks Labor Problem..... 4
The Facts of (Dairying) Life..... 6
Electric Heat Does the Job Best..... 8
How's Humidity in Your Home?..... 9
Farm Pumps—Part 2
Jet Age on the Farm..... 12
Debeaking Nips Cannibalism..... 16
Blast it Clean with Steam..... 17
Safety First with Extension Cords..... 18
He Has Stake in Farming's Future..... 28
Controlled Atmosphere Apple Storage.... 30
On-Farm Walnut Processing..... 32
Regulate Silo Unloader with Ammeter.... 34

the farm home . . . . . .

How High Your Oven..... 19
If Hubby Offers You a Dishwasher..... 22
Recipes ..... 23 Patterns 26
Home Lighting Guide—Part 4
General Kitchen Lighting..... 27

regular features . . . . . .

Research Notes.. 11 Duffy's Cavern.. 15
New Publications 15 Q & A..... 33

Electricity on the farm

DECEMBER, 1960
VOL. 33, NO. 10

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Make Your Home Happier With New Appliances

Appliances are modern man's triumph over drudgery, boredom and discomfort. Through this "work of wizardry" he has turned darkness into light, he has provided his homemaker with personal genies to perform kitchen and household duties, he has preserved and prepared his food to satisfy the most discriminating tastes, he has made himself and his loved ones comfortable with heating units, cooling units, entertainment devices, hobby or handicraft tools, and many other applications.

I'm sure we are all aware of the many things these appliances do for us. But do we have a full appreciation of what they mean for our way of life or do we just take them for granted? Did you ever stop to think how often the dreamers who develop these new appliances come up with a new one?

Maybe there's a new one you would like to see around your place to make it a more cheerful, more comfortable, happier place to live. Christmas isn't far off. Christmas shopping gives you a good excuse to stop by your electrical appliance store real soon and browse around to see what's new. We'll wager you will find an appliance that just fits into that unfinished shopping list.

New Publishing Schedule

In 1961, we are changing our publication schedule. The next issue will be a combination January-February issue which you will receive soon after February 1. Following this combination issue you will receive regular March, April, May and June issues. We will have another combination issue, the July-August, to start the last half of the year. This will be followed by regular issues in September, October, November and December.

HUGH J. HANSEN

Our Holiday Greeting

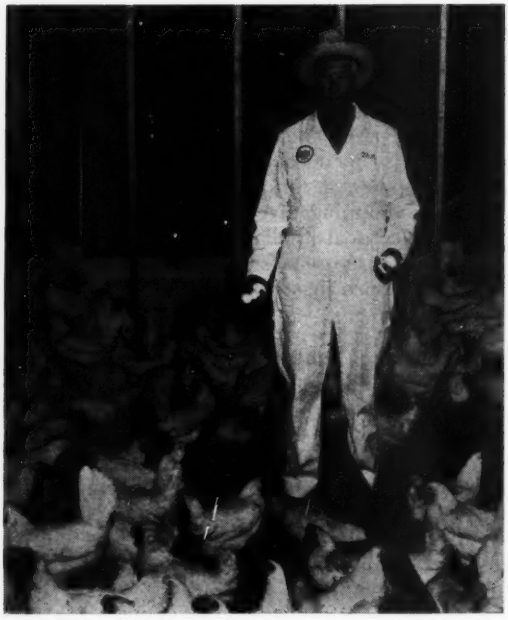
From our house to your house come sincere wishes for joy during the Holiday Season. May Peace and Good Will abide with you and in our land throughout the coming year.

Lakewood Poultry Farm produces nearly 12,000 eggs daily in this 220 ft. by 76 ft. windowless "Egg Factory" housing 15,000 layers plus equipment needed to produce top quality fancy table eggs.

Old-timer in poultry business

Licks Scarce-Labor Problem

By ROY A. NELSON



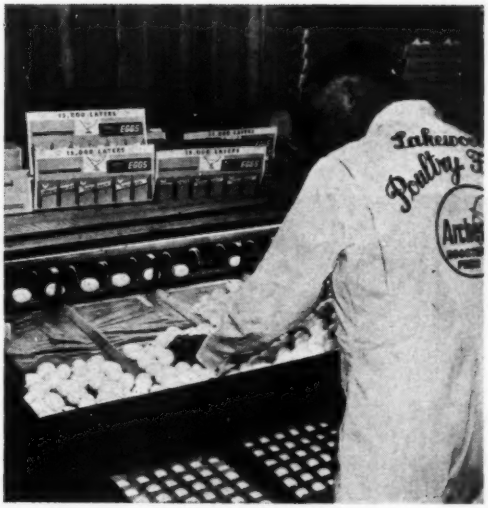
Alex Jackson keeps close watch over his laying hens even though they are cared for almost entirely with mechanical equipment. House is divided into 28 pens, each with 7 special community nests to accommodate mechanical egg gathering units.

We are in the midst of a farm production revolution which is touching all farm enterprises and is probably most advanced in poultry operations. Competition is keen. Alert operators must be ever-mindful of ways to keep ahead of the game. Even old-timers in the business must make frequent self-appraisals and provide needed changes. Failure to do so may lead to disaster.

Alex S. Jackson, an old-timer in the poultry business, made this self-appraisal two years ago. Jackson has been producing eggs at his Lakewood Poultry Farm near Duluth, Minn., since 1925. Two years ago, because of the industry competition for labor, he decided he must either mechanize or quit. He visited several successful poultry operations around the country and decided he would *mechanize*—and stay in business. The result of Jackson's decision is the "Egg Factory" described in this article. It was opened Dec. 4, 1959. Five men, including two delivery truck operators, care for the whole operation.

To guarantee success, Jackson knew he must *sell* the eggs as well as produce them. To sell takes knowhow. To get this knowhow, Jackson hired the former sales manager of a wholesale grocery supplier, Lawrence Stoffregen, as manager. Under Lawrence's capable supervision, Lakewood's top quality eggs are being sold. As proof, just eat eggs for breakfast in any good restaurant in Duluth and you'll very likely find you are eating Lakewood's table-quality eggs.

Egg Gathering—Plastic cups on endless belt carry eggs to cleaning center where Mgr. Lawrence Stoffregen checks for cleanliness. Four units collect over 11,000 eggs daily, gathering frequently to prepreserve that "just laid" freshness.



Egg Processing—Immediately after gathering and cleaning, eggs are candled, graded by weight, and cartoned or craied. The packed eggs are then moved into cold storage for safe keeping until they go to market.

Litter Cleaning—Lakewood hens live on slatted floors. Litter collected beneath slatted area is scraped out three times daily and emptied into dump truck by mechanical poultry litter cleaning unit.

Automatic Feeding—Time clocks run feeders 15 minutes each hour. Five endless chain feeding units are used to distribute 4,000 pounds of feed per day to 15,000 layer hens. Each unit uses one ⅓ hp. motor.

Ventilation—15,000 Leghorns with less than 1 sq. ft. each in windowless house depend on positive mechanical ventilation to provide fresh air 'round-the-clock. Eighteen properly placed fans change air in house every 3 minutes.

Lighting—Lakewood layers never see daylight. Time clocks operate lights 14 hours a day. At end of day, lights are dimmed, hens are roosted from nests by mechanical close-out devices to prevent nest roosting, and lights go out.

He learned them
the hard way...

THE FACTS OF (Dairying) LIFE

1. high-producing stock
2. mechanization

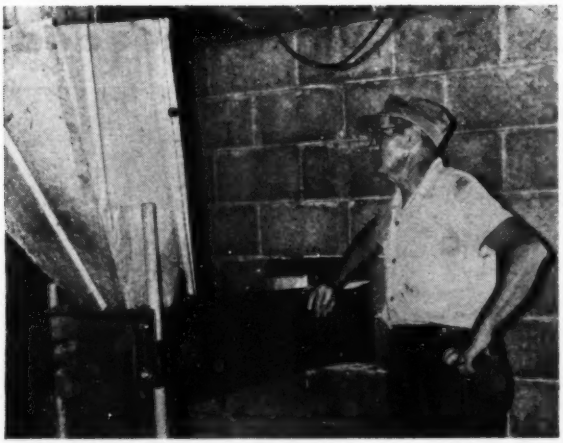
One of the keys to dairying success, mechanization, is symbolized to Albert Schoeler by the new 200-ampere service entrance which replaced the inadequate 60-ampere box.

When Albert Schoeler bought a Harford County, Maryland dairy farm 12 years ago, all he knew about cows was that "they eat 'grass' and give milk in return."

Schoeler was a successful Baltimore businessman until he decided to give up his interests there and develop something more tangible and worthwhile to pass along to his two sons.

His lack of farming "know-how" hurt. Within two years he was deep in debt. But he struggled to obtain all the knowledge he could—from his county agent, from the Grange, from extension

Sixty-foot-long auger bunk feeder extends from silo (background) out into newly-built pole-type loafing barn.



You wouldn't know it, but Schoeler's father, George, is unloading the silo and feeding the herd too! Silage is falling from unloader into collector which guides it into auger. Auger, in turn, delivers it to cows.

classes at the University of Maryland, and from his neighbors.

His inquiries led him to a decision: he would have to make two main changes in order to be successful in dairying. First, he must get some good foundation stock from which to build a high-producing dairy herd. And second, he must mechanize his operation to save as much time and labor as possible.

The first obstacle was overcome when he managed to borrow enough from the local production credit association to finance 19 excellent Canadian Holsteins. That herd has now grown to 75, with 50 milking and all of them high producers.

The second project—mechanization—Schoeler went at with a zeal. His neighbors tell him that more improvements have been put in on his farm in less time than on any other place in the county. The latest additions are an electric silo unloader for his new silo and a 60-ft. auger bunk feeder.

The silo unloader went in first. But even with this help, the feeding chore still involved too much labor and time to suit Schoeler. Feed had to be carted to the barn and forked into mangers—heavy work that took about 20 minutes per feeding, three times a day.

Now the silage is delivered via the auger feeder without any of that back-breaking lifting, and with a time savings of about 15 hours each month. One end of the auger is under the silo chute. As fast as the silage tumbles down, it is delivered into the trough which extends through the loafing area.

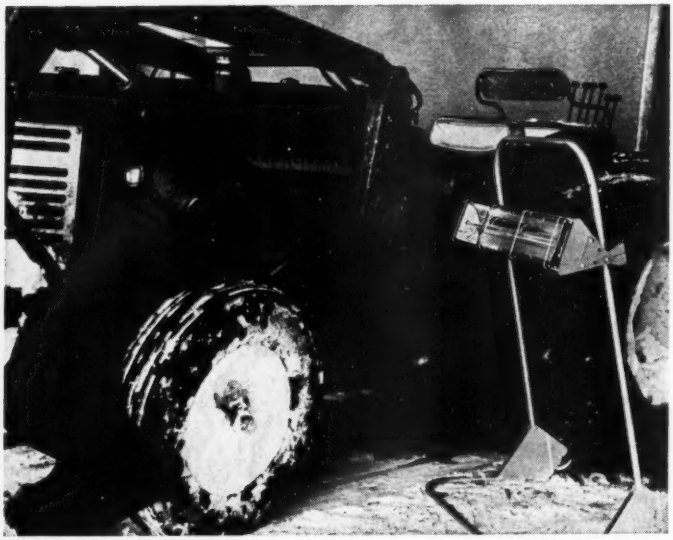
The loafing barn is another new improvement, built as a do-it-yourself project two winters ago. And a bulk milk cooler has replaced the old can cooler that came with the farm. To handle all this new equipment, new wiring was installed, and the service entrance capacity was increased from 60 to 200 amperes.

Schoeler has learned from scratch the two big facts of life in today's dairying: efficient mechanization and high-producing stock are "musts" for top profits. □ □

Chopped ensilage practically unloads itself with this electric wagon unloader (arrow). Silage moves along drag to blower, then up into silo. Schoeler's father, George, and Albert Jr. just nudge things along.

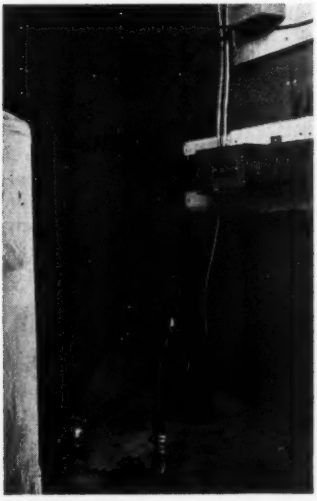
Wherever warmth is needed . . .

Electric Heat Does the Job Best



Quartz-tube infrared heaters are ideal for outdoor and other cold-air applications. They do not warm air, but radiate waves which warm people and objects on contact. Repairs were made on this tractor using bare hands at an outdoor temperature of 10°.

Heat tape is often used to prevent freezing of water pipes. 5-watt-per-ft. tape is spiralled around pipe. In very cold climates, insulation around pipe should be added.



Pumphouse heater is specially-built, 500-watt, thermostat-controlled unit. Mounted on pumphouse wall, aluminum-enclosed element presents no fire hazard.

Heat lamps keep farmer comfortable in hard-to-heat milkhouse. These units provide immediate heat and are ideal for milkhouse, which doesn't need to be heated much above freezing except at milking time. Wire frame protects lamps against breakage.

Horses on Grosse farm enjoy year-round availability of fresh, ice-free water from automatic stock waterers.

WATERERS CUT FAMILY'S CHORES

THE WILFRED GROSSE family, of Sun Prairie, Wisconsin, consists of seven daughters and one son. Their home and business is an average southern Wisconsin dairy farm—about 200 acres of fertile cropland, 70 head of well-bred Holstein dairy cattle, 25 riding and driving horses, and a herd of sheep. The place is abundant with both bustling activity and pleasant hospitality.

Modern electric choring equipment makes this farm an efficient and pleasant place on which to work and live. Five electric stock waterers serve as part of Grosse's choring equipment. They are located where each can be put to maximum use. Since his land is split into two parcels, three of the waterers are on the main farm and two at the other location where young stock is raised.

Each stock waterer he has put in has done more to convince Grosse that, when a water-freezing problem exists, this is the sensible way to correct it. HAROLD HOFFMAN

How's the Humidity in Your Home?

On warm, muggy summer days we often hear the expression, "It isn't the heat—it's the humidity." What we mean, of course, is that we become uncomfortable when there is a lot of moisture in the air—the relative humidity is too high. In winter, low humidity will cause discomfort too, but in a different manner. Have you walked across a carpeted floor lately and then touched a metal door knob? Did you get an annoying shock? Have your children been plagued with hacking coughs at night? Is your furniture loosening at the joints? Are cracks opening up in wooden floors? These are all signs of low humidity in your home.

Current statistics indicate that many homes average only 10-15% relative humidity during winter months. About 40% is recommended by heating engineers. Many doctors say even a bit higher than 40% is most advantageous for human health. To bring this dry air up to a desired level requires about one gallon of water per average room per day. This can be done with a device called the mechanical humidifier which adds moisture vapor to the air. If operated by a humidistat switch, it automatically shuts itself off when the right amount of humidity is reached.

Humidification Not Needed In All Homes

There are some homes, however, that do not need humidification in winter. If your home is new, or if you use electric heat in either a new or an old home, your problem is probably the opposite. It takes about two years to dry out all the moisture in a new home. During this time the moisture being dried out of the building is ample to keep the humidity level high. Since electric heat is not an oxygen-consuming, combustion-type heat, electrically heated homes are usually very tightly "buttoned up" with insulation, storm doors and double windows. This, combined with the fact there is no chimney so in turn no air exchange in this manner, tends to cause a moisture buildup in electrically heated homes from cooking, bathing, laundering and other moisture-producing activities.

Remove Excess Humidity With Exhaust Fans

More often than not, electrically heated homes will need to have humidity removed. This is best done with small exhaust fans in the kitchen, bathroom and utility room areas. Such fans should be controlled by a humidistat—a switch that is turned on or off by the amount of humidity in the air.

Modern-day living standards have taken care of heat to give us optimum comfort—if it's too cold, we add heat; if it's too warm we remove heat. Humidity can and should also be controlled for optimum comfort. If the air is too dry, we can add humidity—if it has too much moisture, we can exhaust it to get rid of the unwanted moisture. □ □

SOIL STERILIZER KILLS WEED SEEDS

By R. G. HARVEY

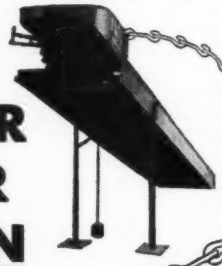
BENNETT G. VOLMER operates a vegetable farm near Collamer, New York. For upwards of 20 years Volmer has used an electrically-heated soil sterilizer on the earth he uses in his greenhouse. He sterilizes all the soil he uses for starting seedlings. His main aim is to kill all weed seeds before they have a chance to sprout and choke out seedlings.

Volmer's soil sterilizer is approximately 40 inches long, 17 inches deep and 17 inches wide. Heat is provided by four electric resistance-heating elements, 400 watts each, placed in galvanized pipe. The four pipes are then inserted at evenly-spaced intervals in the wooden sterilizing box.

Volmer raises a variety of vegetables on his farm, including tomatoes, cabbages, lettuce, and cauliflower. Flowers are also raised on the farm. □ □

Soil sterilizing box is made of wood, with four heating elements encased in pipe. Here, Volmer is filling box with earth to be used for starting seedlings. Sterilization kills weed seeds.

A PATZ BARN CLEANER COSTS LESS PER YEAR TO OWN



That's right! A Patz Barn Cleaner definitely costs less to own. Costs less because it's BUILT STRONGER . . . HAS FEWER PARTS TO WEAR . . . IS DESIGNED FOR RUGGED DAILY USE . . . AND . . . IS EASIER TO SERVICE.

Patz Barn Cleaners are the original, pitless, endless chain type for easy tension-free 90 degree right or left-hand turns — and any degree of elevation required.

Tough Patz Barn Cleaner Chain has no troublesome pins to rust, lock, bend or shear. Flites are welded to individual links for longer problem-free life. Smooth rolling action of this single-piece "Hook-n-eye" link around gutter corners and drive sprocket reduces wear and power requirements. As a result, you get added years of dependable, more economical use.

What's more — servicing is extra easy since Patz Barn Cleaner Links can be added or removed in a jiffy **without tools.** Trouble-free corner wheel installation is quick — engineered to completely eliminate removal problems.

In fact — all Patz Barn Cleaner parts — power unit, speed reducer, return corner — are made for extra-easy installation. Yes — a Patz Barn Cleaner **does cost less** per year to own. Just check any man that owns a Patz — he'll tell you the same.

THE PATZ COMPANY

Pound, Wisconsin

RESEARCH NOTES

By J. P. SCHAENZER

Machine pickers harvest satisfactorily from ¾ to 1 acre of green beans per hour.—*Pennsylvania State Univ., R. F. Fletcher*

The peak weekday TV viewing period for both men and women is from 7 to 10 p.m.—*Louisiana State Univ.*

The per-person use of butter decreased during the past 25 years from 17 to 8.4 lbs., but use of margarine rose from 2.9 to 9 lbs. Total of the two dropped from 19.9 to 17.4 lbs.—*AMS, USDA, George Kromer*

Window air conditioners and evaporative coolers are not recommended for egg cooling as they are not designed to maintain temperatures down to 45-55°F.—*Texas A & M College, E. D. Parnell and R. C. Jaska*

Holstein DHIA records show that the top 20% of the herds averaged 12,950 lbs. of milk and 468 lbs. of fat and the bottom 20% 8480 lbs. of milk and 305 lbs. of fat.—*Cornell Univ.*

Automatic mechanical silo unloading costs only about two thirds as much for a 60-cow herd and ½ as much for a 100-cow herd as does unloading by hand.—*USDA, R. N. Van Arsdall*

When we eat a pound of pork we consume the equivalent of 6 lb. of grain, mostly corn.—*USDA, Western Utilization Laboratory*

Time studies of herringbone milking parlors show that it takes a total of 1.2 minutes of actual time for preparing, milking, handling and feeding of each cow.—*Purdue Univ.*

It took 2300 KWHrs to brood 10,000 chicks in 1300-1500 watt, 750-chick hover brooders, from Jan. 27 to Mar. 31 in a 40 x 120-ft. house.—*Glen S. Nelson and Edgar G. Arnn, Univ. of Arkansas*

Better quality frozen strawberries at less cost are possible with a capper that handles from 1500 to 2000 lbs. per hour than by removing the caps by hand in the field.—*Univ. of Tennessee*

High-quality instant food powders of good color and flavor have been made from the juice of tomatoes, apricots, pineapples, apples, grapes and oranges; from milk, coffee, prune-whip, beef and chicken broth, and lemonade.—*USDA Western Research Lab., Albany, Calif.*

Both rolled and ground high-moisture corn prepared at feeding time produced beef gains faster and more efficiently than whole kernel corn.—*Univ. of Illinois, A. L. Newmann*

A farm pond can be a water source for irrigation, fire protection and livestock water and can provide fishing and boating.—*Purdue Univ., Donald R. Sisson*

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FIRST CHOICE of PROGRESSIVE DAIRYMEN

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Some farm bulk milk coolers can be as obsolete the day they are installed as your can cooler! Here are three, sure ways to tell an old-fashioned tank — so you won't get stuck with one:

(1) An old-fashioned tank, usually rectangular-shaped, requires water and ice to meet the cooling code, practically doubling your cooling expense. (2) When cleaning equipment is installed and used in an old-fashioned tank — the large, loose, awkward lids leak water all over your floor; and the corners are practically impossible to clean properly. (3) When you go pipeline with an old-fashioned tank — you have to shell out a lot of cash for an expensive, hard-to-clean releaser or pump.

SEND FOR FREE BOOKLET — about the *truly-modern, round-shaped* ZERO T-20 Vacuum Automatic Bulk Milk Cooler, *that cleans itself*, today!

Zero® T-20 VACUUM AUTOMATIC BULK MILK COOLER —with BUILT-IN SPATTER-SPRAY AUTOMATIC WASHER

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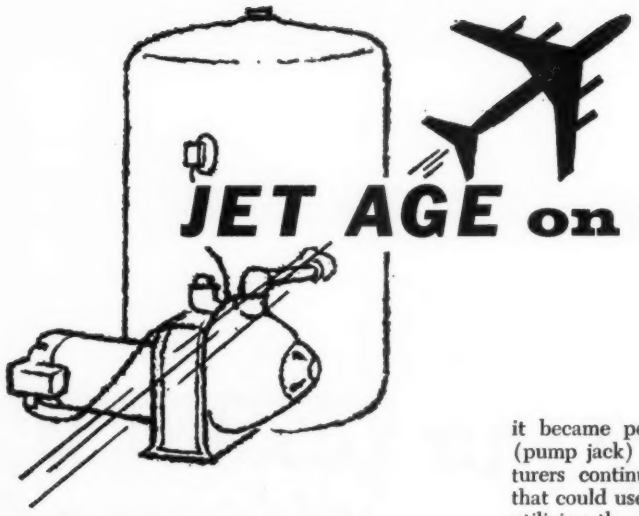


JET AGE on the farm

This is truly the jet age for farms—jet pump age, that is. Although the only common characteristic between a jet pump and a jet aircraft is the name, these two design advances have had an interesting parallel. Both have been responsible in creating new horizons in their respective industries.

To air travel, jet aircraft have brought speed, luxury, comfort and safety. To farms, jet pumps have brought an era of more water from greater depths for more convenience at less cost.

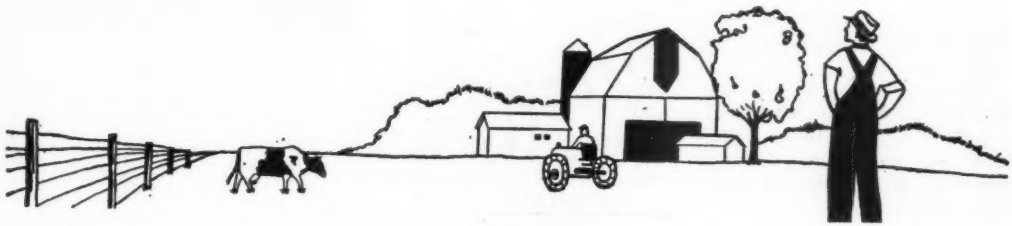
Until the middle 1930's farm families utilized one basic pumping principle of obtaining water . . the piston pump. Most often it was a hand piston pump. In some cases a windmill, attached to a hand piston pump, did the work.

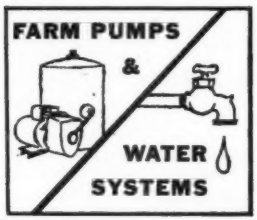
As electric power suppliers extended rural lines, electricity began to replace the toilsome hand power and the undependable wind power. Then, it became possible to attach an electric drive (pump jack) to the hand pump. Pump manufacturers continued to work on improved designs that could use electric power to move water. Still utilizing the piston principle of the hand pump, they developed an electric piston pump for shallow wells and another for deep wells.

These new piston pumps offered new advantages. Because they were designed for electric power, they could produce more water. They were extremely dependable. (Many early piston pumps are still in use today.) Although companies continued to improve the design and pumping capabilities of these pumps, the cost (in dollar value of the time) was still considered out of the reach of many farm owners. .

In the middle thirties, a new pump reached the market. It was called the centrifugal-injector pump, later shortened to jet pump. Actually, this new idea was merely combining two different pumping methods which had been used many years before, but never for farm water supply.

This jet pump consisted of a centrifugal pump principle combined with the injector method of





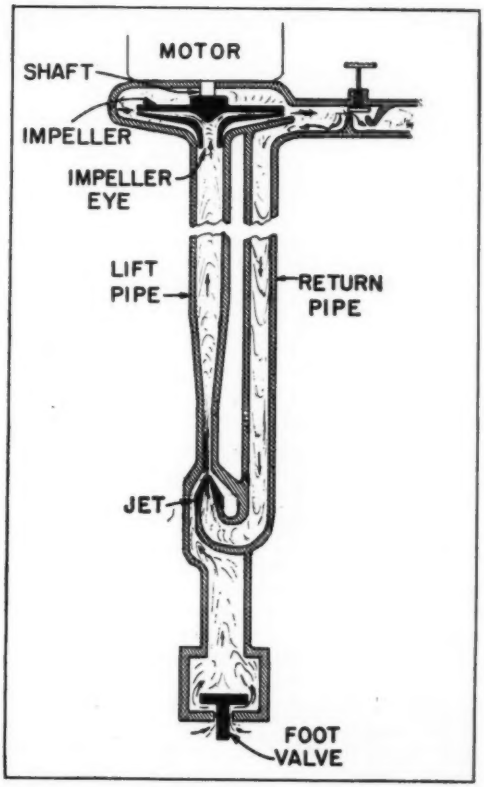
putting water into boilers of early steam engines. Up to this time, the centrifugal pump had been disregarded as a well pump because it couldn't create enough power to lift the water to the pump from the well. By adding an injector (or ejector as some called it), it was possible to use part of the water to pump additional water to create enough pressure for lift.

How the Jet Works

Here's how the jet works: (See drawing this page) The heart of a jet pump is its impeller. It is completely round and has vanes. The impeller is attached to the shaft of an electric motor and spins as the motor shaft spins. Water enters the eye of the impeller and is "spun out" through the vanes. Naturally the faster the impeller turns, the faster the water moves through it. The larger the vane openings, the more water the impeller spins. The larger the impeller diameter, the higher the water pressure. Such is the operation of the centrifugal part of the pump.

As the water leaves the impeller, part of it is sent back (In a deep well jet pump) by a return pipe that carries this water to the injector (now called the jet) in the well water. As this return water forces itself through the jet, a vacuum is created. This causes atmospheric pressure to force more water from the well through the foot valve, through the jet and into the lift pipe. As the water goes through the impeller the cycle is completed. Part of it goes into the service line, part of it returning to lift more water.

Shallow well jet pumps operate under the same basic principle, except the jet assembly is located close to the impeller. (See drawing page 14) This, then, without going into a complete study



Deep well jet assembly is located at bottom of well just above foot valve. Deep well units can be used on wells up to 150 feet in depth.

on hydraulics, is how a jet pump operates.

As more and more jet pumps appeared on the market, farm owners began to appreciate new advantages never before found in well pumps.

One important feature of the new jet pumps was their price. Because jet pumps have only one moving assembly (impeller and component parts), manufacturers were able to reduce manufacturing costs, and produce well pumps with higher water capacities at lower cost. Improved design features and new materials have enabled pump manufacturers to continue to offer jet pumps without any substantial increase in price.

In terms of equal dollar values, many manufacturers offer jet pumps at prices today actually lower than equivalent makes just fifteen years ago.

Owners of deep wells (over 25 feet) found advantages in the new jet pump in installation. Since a deep well piston pump must be located directly over the well, it is often necessary to build a pump house for frost protection. Since a jet pump can be offset from the well, it is possible to locate the pump and tank in the house basement, eliminating the need for pump house construction.

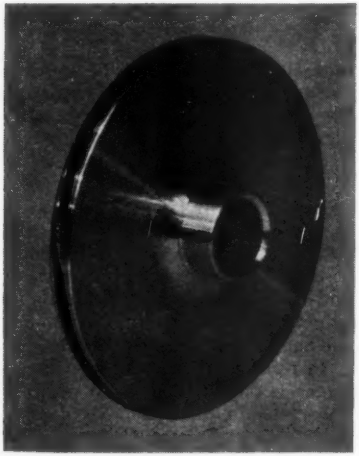
Jets Very Versatile

Convertability is another feature many manufacturers have built into their jet pumps. This means that one pump can be used either for shallow or deep well service, merely by changing the jet assembly and its location.

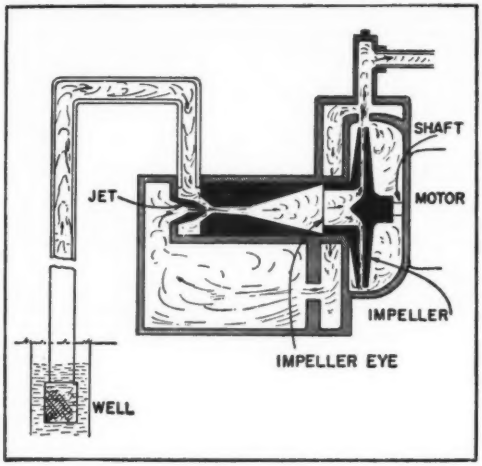
Deep well jets originally were designed for four inch minimum wells. Refinements, however, have made it possible to install jets on wells as small as two inches in diameter (packer type).

Jet pumps also have given farm owners the possibility of tailoring a pump to their exact requirements. A jet pump can be used with a wide variety of jet assemblies. An assembly can usually be selected to meet the specific requirements of an individual well.

Other recent advancements have helped to increase the jet pump's popularity as a farm pump. The advent of plastic pipe has eased installation time on jet pumps . . . and cost. Jet pump manufacturers are moving steadily into more and more plastic components for the jet pump. Many of these new materials are proving to offer better performance and life than metals previously used. Easier servicing, increased capacities, more water pressures are being found as new models come off manufacturers' assembly lines.



Impeller is heart of jet pump. Water enters the eye of impeller and is "spun out" through vanes to create water movement in pump chambers.



Shallow well jet pump locates jet assembly directly on pump. Shallow well units can be used on wells 25 feet or less in depth.

Selecting the proper jet pump for your farm needs is something that should receive careful consideration. Care should be taken to choose a pump that will give you the maximum of useful, healthful and convenient benefits from your farm water supply. A qualified pump dealer in your area can help you determine both your water requirements and the pump that will deliver those requirements.

Whether or not a jet pump will meet your specific requirements depends on several factors. There's a good possibility it will if the depth of your well is 150 feet or less. If you buy a jet pump, you'll be in good company. Almost eight out of every ten pumps sold today to well owners are jets.

For wells fifty feet or deeper, a relative newcomer to the water pumping family may enter the picture. Submersible pumps have grown steadily in popularity among farm owners who want larger water yields.

EDITOR'S NOTE: Coming next month—"Submersible—That Underwater Efficiency Expert".

SNICKERSCOOP-OF-THE-MONTH: Friend of ours bought a coon hound recently and spent an entire evening telling us what a wonderful dog it was. When we had a chance to get a word in edgeways, we inquired if the dog had ever treed any coons. "Well, not yet," admitted our friend. "You see, the dog has one drawback. He LOVES to follow a track BACKWARDS." . . . . IT'S THE TRUTH: Will Rogers once attended a fashionable Park Avenue affair in cowboy duds. A dowager (in a fantastically extreme evening gown) looked down her nose. "MY DEAR MAN," she sniffed, "DON'T you have any clothes besides those?" "Madam," drawled Rogers, "I was just about to ask you the SAME THING!" . . . . OVERHEARD (as one white collar gal flashed her engagement ring at her suspicious rival): "Remove your SKEPTICALS, dear—It's a DIAMOND." . . . . JINGLE-JOLLY DEPT.: A woman who QUICKLY AND FREELY forgives is a JOY for the trouble she'll save you. But EXPERIENCE reveals that as LONG as she LIVES—She will NEVER FORGET she FORGAVE you! (Lee Ross in American Legion Magazine). . . . . EXAM PAPER definition of the difference between a BOLT and a NUT—"A BOLT is a thing like a stick of hard metal such as iron with a square chunk on one end and a lot of scratching wound around the other end. A NUT is similar to a bolt, only the opposite, being a hole in a little chunk of iron, sawed off short, with wrinkles around the inside of the hole." . . . . CANARY: A bird that sings TWEET music. . . . . SOME women don't park a car—they just ABANDON it. . . . . When we asked a henpecked friend of ours, "What does your WIFE think of your new TEETH?" he replied sadly, "I don't KNOW, I NEVER open my mouth around the HOUSE." PARTING THOUGHT: RELAX! Don't worry about the job you DON'T LIKE. Someone ELSE will SOON have it. . . . .

Your pun-peddler—DUFFY

New Publications

1960 Yearbook of Agriculture

Power to Produce, the factor largely responsible for America's tremendous growth and advancement in the field of agriculture, is also the title of this year's "Yearbook of Agriculture," published by USDA. The yearbook describes the dramatic changes that have occurred on our nation's farms since the days of the one-horse plow and three-legged milking stool—all the way up to today's efficient, push-button mechanized operations. Topics include the development of field equipment, electricity, communications, livestock handling, marketing mechanization, farm buildings, and others. Copies of the 480-pg. hard-covered book are available at $2.25 each from Supt. of Documents, Washington 25, D.C.

Electric Heat Insulation Booklet

A revised edition of *How to Insulate Your Home for Electric Heating* includes sections on: the new "R" method of specifying amount of insulation needed; how to install insulation; proper ventilation; and types of electric heating equipment. Single copies free from Nat'l. Mineral Wool Assn., 1270 6th Ave., New York 20, N.Y.

Electrical Code Handbook

The *National Electrical Code Handbook,* based on the 1959 edition of the code, follows the same numbering system as the code, with explanations of electrical rules and measurements and how to apply them. Price: $10.00—McGraw-Hill, 327 W. 41 St., New York 36, N.Y.

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Insist on . . .

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CAPACITIES TO
225 GALLONS
PER MINUTE

•

PUMP FROM
DEPTHS TO
600 FEET

Farmers and ranchers who need a *big water supply* to operate profitably will find the Red Jacket Model H "Submerga" the pump that will meet their needs. It will assure plenty of water and pressure on all parts of the farm. It's a big capacity submergible pump that operates under water in a 6-inch well to give long dependable service with a minimum of maintenance.

For complete information about the Model H and all Red Jacket Pumps, including "Submerga" pumps for 4-inch wells and jet pumps, see your local water systems dealer or well driller.

RED JACKET
water service products

RED JACKET
MANUFACTURING
COMPANY
Davenport, Iowa

WS-109

Electric unit allows Ralph Bell of Hartsville, S.C., to debeak 500 chicks an hour. He used to debeak birds 3 or 4 times; now finds once is enough.

Debeaking Nips Cannibalism

Cannibalism is one bugaboo that all poultrymen would just as soon do without. Lots of remedies have been tried—some work and some don't—but none have proven infallible. Debeaking is a tried and true method of keeping poultry flocks from self-destruction. But it's got to be done right to work to the poultryman's advantage.

Most debeaking these days is done with electric units that cut the beak, then sear and stop the bleeding. These units were used in research on broiler chicks at the University of Maine which tried to determine the best:

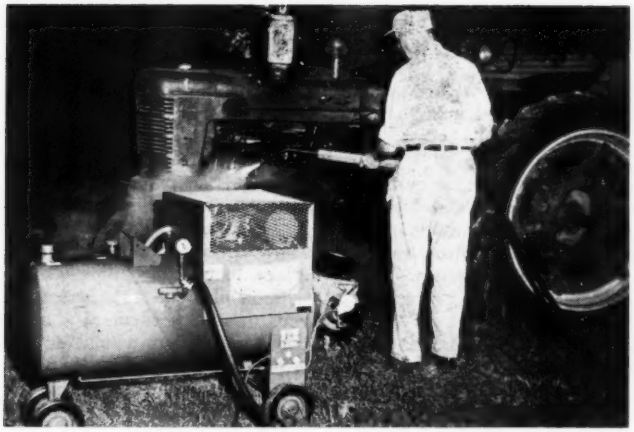
1. Degree of debeaking
2. Time of debeaking
3. Feed conversion
4. Carcass weight

The Maine results showed that debeaking results in a lower body weight at marketing, but with better feed efficiency. Feed efficiency was better when broilers were debeaked at 10 days than when 1-day-old chicks. Best feed conversion, but smallest body weight, was obtained with ⅜ of the upper beak removed and lower beak tip seared at ten days of age.

University of Missouri poultry scientists say that debeaking is one of the best ways to control cannibalism. However, layers in production should be disturbed as little as possible, and it is best to debeak when birds are transferred to the laying house. It is standard practice among many poultrymen to debeak pullets when they are housed regardless of whether or not there are signs of cannibalism, because cannibalism outbreaks often occur at housing time. Outbreaks can spread through an entire flock in days, or even hours.

Degree of debeaking is critical. Severely-debeaked chicks can be stunted in size and/or production. If half or more of both beaks is removed, "starve-outs" can be expected, and mortality will be way above normal.

It pays to debeak turkeys too, to prevent feather pulling and cannibalism. Remove about a quarter of the upper beak with an electric debeaker at about 6-8 weeks of age. □ □



Equipment runs better when its surface isn't covered with a layer of dirt and grease. Steam gets rid of dirt on equipment thoroughly and easily, without hard scrubbing.

Blast it Clean with Steam

No one seriously questions the fact that, more and more, sanitation is recognized as a necessary part of modern farming. Of course, there are many varying degrees of sanitation, from simply dusting in the corners to steam blasting.

Portable steam generators are becoming widely accepted as useful cleaning and disinfecting tools on farms. Steam fulfills the double purpose of both blasting away dirt and killing germs. Also, applying steam is lots easier than scrubbing with a hot water and disinfectant solution. Manufacturers of steam generators claim that one man can clean as much in an hour with steam as he can by hand in an 8-hour day.

Small portable steam generators are made by a number of firms. Most units consist of water tank, pump, and heating section, all mounted on wheels for portability, and a steam hose and gun with insulated handle. Units may be either fuel-fired, with fuel tank and blower, or heated electrically. They are usually built to deliver various pressures up to 250-300 lbs. per sq. in. of wet or dry steam, as well as hot water. Special detergents and disinfectants may be added for extra cleaning power. Thermostat-controlled units conserve on fuel or electricity by heating up only when temperature of steam falls below a preset level.

Uses for steam generators are many. They can be used to clean and disinfect poultry houses, hatcheries, hog house and farrowing crates, dairy barns and parlors, milkhouses, fur ranches, etc. In addition, they do a thorough job of cleaning machinery and engines, flushing radiators, sterilizing dairy utensils, heating water for milkhouse cleanup, soil sterilization, and many other cleaning and disinfecting jobs. □□

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SAFETY FIRST WITH EXTENSION CORDS

Sure, extension cords are plenty handy! But they can also be mighty troublesome or even outright dangerous if misused. Two of the most common abuses of extension cords are overloading by hooking in too many appliances, and having a cord longer than necessary that is liable to get tangled.

How to get around the former abuse is plain common sense—be careful not to plug too many appliances into an extension cord, since the cord can draw just so much current from a single outlet. Total draw from a single 15-ampere 115-V outlet should not exceed 15 amperes.

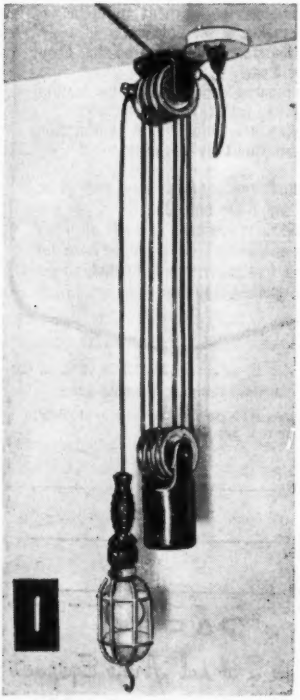
In addition, the extension cord should have enough capacity for the load it must handle. It should be large enough gauge wire to carry the current. Never use a 5 & 10¢ store cord (usually #18) for anything except small light bulbs. A #16 cord will handle 7½ amps.

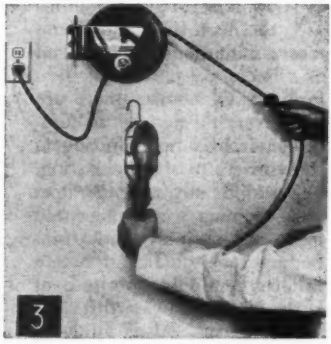
Solving the other problem is not so easy. You use an extension cord for many different jobs, and it can't be the right length for every one. That is, unless you use a reel to take up slack and keep cord out of the way.

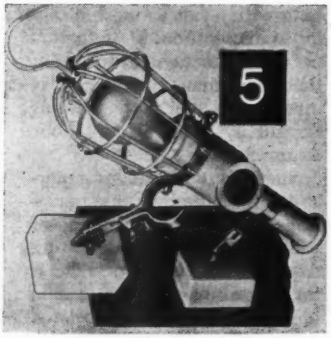
These reels come in many different shapes and styles. Many simply snap around the existing cord with no further installation needed. Others combine cord and reel in an integral unit. No matter what the individual style, if the reel keeps the cord out of the way of obstructions it is doing its job. For shops and garages, special trouble lamp reels attach to wall or ceiling.

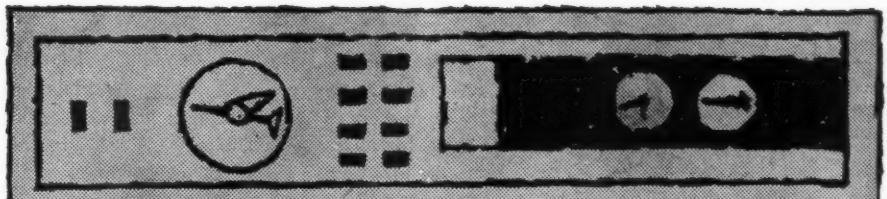
Reels also solve the extension cord storage problem. Too often cords are tied in a knot or just left in a tangle, which must be unwoven before the cord can be used, to say nothing of the physical damage it does to the cord. Insulation cracks and wire is easily broken if cord is not carefully stored. □ □

Extension cord reels and accessories help keep cords safe. Samples of those available commercially include: **1.** Overhead mounted reel featuring automatic cord lock and retractor. **2.** Take-up reel which easily attaches to any cord, holds up to 9 ft. **3.** Drop-light reel with gravity locking action; automatic re-reel. **4.** Cord reel with built-in side outlet, holds 25-50 ft. of No. 16 or 18 cord, can handle up to 7½ amperes. **5.** Portable hand-lamp holder has powerful magnetic base.









How High Your Oven . . .

or—to say it another way—do you have to stand on your head in order to see how the steak is doing in the broiler?

Perhaps the extra amount of cooking and baking you'll be doing in the holidays just ahead will point up to you this—and other—deficiencies of your present range, all of which might be solved by many convenience features of the newer types.

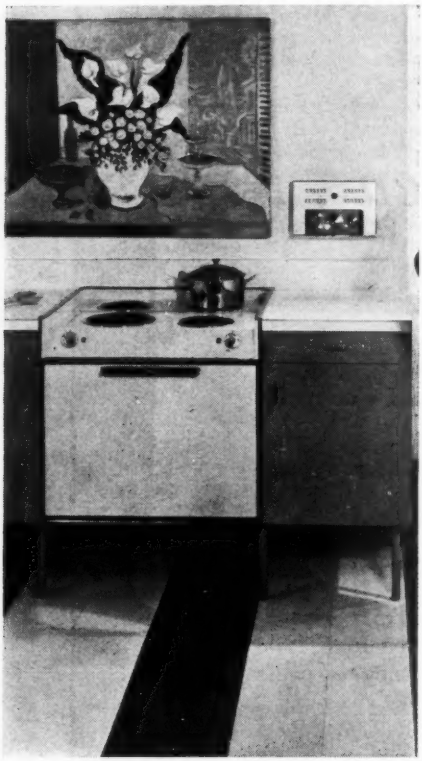
You'll have no difficulty finding one to fit your needs because there is an infinite variety from which to make a choice. On the following two pages we've chosen those electric ranges which we feel are representative of new trends for 1961. By studying these you'll be able to decide upon your own needs and what you should look for when you go to buy.

THE FARM HOME

BY RUTH GAFFNEY

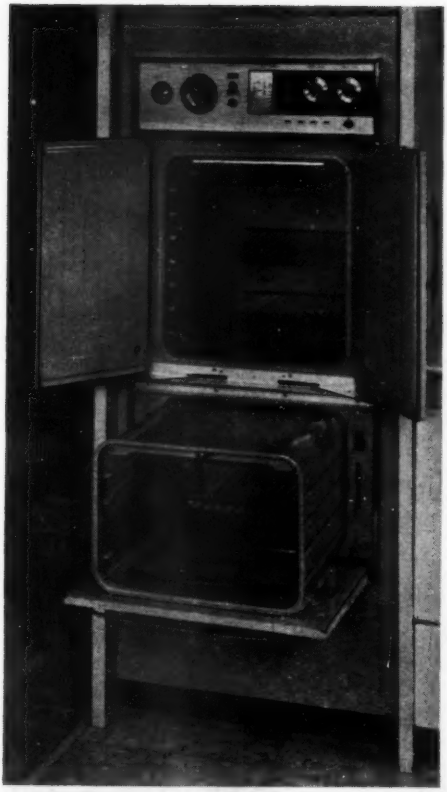
. . . *how high your oven!*

Is the oven in your range small, dark and inconvenient? It has been emphasized many times that homemakers, when selecting a new range, ask most often for an oven that is *easy to use.* By this they mean an oven located at a convenient height so they can see what's cooking. Convenient height also contributes to ease and safety in removing hot foods—and certainly makes it much easier to clean. Here are types of ranges to illustrate what we mean.



Above, compact and pretty describes this up-off-the-floor, 27-inch wide electric range with a built-in look. Placed between base cabinets, the generous oven in the range has wide door which makes oven easy to use and gives maximum visibility.

Below, newest idea in free-standing electric ranges is this 40-inch, two oven design. Unique doors glide up out of the way, at same time giving complete access to food in the oven. While food is cooking, you can watch the whole process through the glass doors. Cooking surface pulls out like a drawer at a convenient 32-inch work height. When not in use, heating units glide into range and out of sight.



Above, *wall oven has French-type doors which exposes complete interior to full view. Lining of small oven underneath pulls out for easier cleaning. Divided doors are wonderful idea when oven must be installed in narrow passageway. You can have valuable, additional storage space in cabinets above and below ovens.*

This beautiful 40-inch free-standing electric-range with streamlined design is a familiar stand-by. One large and one small oven gives big-capacity cooking space. Doors lift off for easier cleaning of interior. Oven has meat thermometer to insure cooking of roasts to exact degree of doneness you choose. If you're not ready to serve immediately, this unique thermometer keeps roast hot and juicy for several hours without further cooking.

What to look for when you buy . . .

Decide, first, on the best place to put the range in your kitchen. It should be as near the mixing area as possible, and convenient to the dining area, to save steps when serving a meal. Measure the amount of space you have to determine range size.

You'll want the newest, streamlined look, of course. If this means separate ovens and surface units to you, remember they do take up more space than a free-standing range.

If you decide upon the built-in oven and want two because you do lots of cooking, it is better to place them side by side than one over the other. The latter arrangement does away with the great advantage of this type of oven, namely, waist-height for maximum visibility and ease of use. Plan at least two feet of counter space next to the oven for placing hot utensils as they are taken out.

If you must think of cost, consider one of the new ranges that does not include as many of the extra convenience features. While these features are included because they do serve a real purpose, you will find the same good quality in the less expensive as is included in the most expensive electric range.

Has your husband offered you a dishwasher lately? Then take it, says Mrs. McEver

Dishwasher unit is under-counter, built-in type to blend with cabinets and counters in McEvers' new kitchen.

Can you imagine a wife refusing the gift of a dishwasher from her husband?

Mrs. R. H. McEver did. But that was four years ago, and, exercising the time-honored woman's privilege, she has changed her mind. The Talmo, Georgia, grandmother has a dishwasher in her new kitchen.

She has found that her dishes do not have to be pre-washed as she had once thought. What is more, they come out of the dishwasher sparkling clean and sterilized.

Shortly after she began using her new appliance, Mrs. McEver discovered how much easier it makes entertaining. Fifteen guests were at her home for a Sunday School party. All of the dinner plates, crystal and silver used in serving that group made just one load for her washer which has racks that roll forward for easy loading and unloading.

Dishwashing the Big Chore

Mother of seven children and 15 times a grandmother. Mrs. McEver says it is easy to cook a little more when family members drop in for a visit. The real burden was washing the additional dishes, and her dishwasher takes care of that chore handsomely. Cleaning up after a meal takes only ¼ to ⅓ as long as before.

In eight months of using the new appliance she boasts a perfect record: No broken dishes or crystal.

The affable lady who once refused to accept a dishwasher has changed her mind completely. "It's good for young people, but it's wonderful for older people," she declares. □ □

Can't you smell *the goodness of the chocolate and imagine yourself dipping these coconut balls into its creamy lusciousness! They are quick and easy to make and just delicious.*

Make Candy for Christmas

Where is there a dieter so strict that he—or she—won't toss discretion to the winds during the Holidays and enjoy homemade candy. You can't resist these tempters.

Chocolate Coconut Dips

⅔ cup sugar
3 tablespoons water
1 cup, minus 1 tablespoon, light corn syrup
4 cups flaked coconut
1 package (8 squares) semi-sweet chocolate, cut in pieces

Combine sugar, water and corn syrup, and heat to boiling. Add coconut and cook until small amount of syrup forms soft ball in cold water (or until candy thermometer shows 236° F.). Drop from teaspoon in uneven balls on waxed paper. Cool. Melt chocolate over warm (not boiling) water, then allow it to cool slightly. Dip coconut centers in chocolate, lift out on waxed paper and cool until firm. Makes 5 dozen candies.

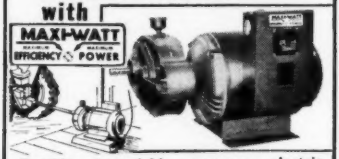
Walnut Surprises

½ pound large marshmallows
¼ pound walnut halves
1½ cups shredded coconut

(Please turn page)

protect your farm against power outage

WINCO® POWER INSURANCE TRACTOR GENERATOR with MAXI-WATT



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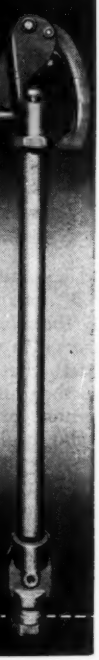

Vari-Flo Model F-55—¾" size. Cam-Lock Model B-56—1" size. Bury Depth—2, 3, 4, 5 or 6 ft., depending on frost level in your area.

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The Columbiana Pump Co.
RAILROAD STREET
COLUMBIANA, OHIO

Candies not only make a welcome gift, wrapped in gay colors in aluminum foil, but they are wonderful to have around when family and friends join you for Christmas. Good to serve any time.

Walnut Surprises *(Cont'd.)*

Melt marshmallows in double boiler. Dip walnut halves into marshmallow, coating well, and roll each immediately in the shredded coconut. Makes 16 candies.

Chocolate Sugar Plums

1 6-oz. package (1 cup) semi-sweet chocolate morsels
½ cup sugar
3 tablespoons light corn syrup
½ cup orange juice
2½ cups finely crushed vanilla wafers
1 cup finely chopped walnuts

Melt semi-sweet chocolate morsels over hot (not boiling) water. Remove from heat; stir in sugar and corn syrup. Blend in orange juice. Add wafer crumbs and nuts to chocolate mixture; mix well. Form in 1-inch balls and roll in sugar. Let ripen in covered container several days to improve flavor. Makes 5 dozen.

Brazil Nut Mallows

2 squares unsweetened chocolate
1 cup evaporated milk
½ cup sugar
40 marshmallows
2 cups chopped Brazil nuts

Melt chocolate in top of double boiler; stir in milk and sugar. Cook, stirring frequently, 30 minutes or until mixture becomes thick. Insert fork into marshmallows and dip into chocolate mixture. *(See next page)*

Brazil Nut Mallows (Cont'd.)

Strike fork against edge of double boiler to allow excess chocolate to drop off. Drop into chopped Brazil nuts and roll until covered. Place on waxed paper to harden. Makes 40 candies.

NOTE: To shell Brazil nuts quickly, cover them with cold water, bring to boil and boil three minutes. Drain, cover with cold water for a minute, then drain and see how easily they can be cracked and the meats freed from the shells.

Nut Brittle

2 cups sugar
¼ teaspoon soda
1 cup chopped walnuts or Brazil nuts

Put sugar in heavy skillet. Place over low heat and stir constantly until sugar melts. It is important to keep mixture stirred constantly over low heat to get a light, even caramelization of the sugar. Just as soon as all the sugar has melted, add the soda and stir in nuts. Turn onto greased baking sheet and roll out with rolling pin until brittle is ¼-inch thick. Before candy is cool, mark quickly into squares with a sharp knife. Break into pieces when brittle hardens. Makes approximately 1¾ pounds.

Favorite Caramels

2 cups sugar
½ lb. butter
1¾ cups corn syrup
1 can (14½ ozs.) evaporated milk
1½ tablespoons vanilla
1 cup chopped nuts

Place all ingredients except vanilla and chopped nuts in saucepan. Cook over high heat until candy thermometer reaches 210° F. Then reduce heat and continue cooking, stirring constantly, until thermometer registers 244° F., or when a small quantity forms hard ball when dropped in cold water. Remove from heat, add vanilla and chopped nuts. Stir vigorously and pour into greased pan. When cold, turn out, cut into squares and wrap each square in waxed paper.

Old-Fashioned Molasses Taffy

1 cup molasses
1 cup sugar
1 tablespoon butter

Combine all ingredients in 2-quart saucepan. Place over low heat and stir until sugar is dissolved. Cook over medium heat until syrup, when dropped in very cold water, separates into threads which are hard but not brittle; or until candy thermometer reaches 270° F. Pour into greased platter. As edges cool, fold toward center or they will harden before center is ready to pull. When candy is cool enough to handle, press into ball with lightly buttered fingers. Pull until candy is light in color and ready to harden. Stretch into a long rope, one-half-inch wide. Cut into one-inch pieces. Wrap each piece of taffy in waxed paper. Makes 1¼ pounds.

Grape-Nuts Fruit Roll

6 dried figs
½ cup raisins
12 dates
12 dried apricots
⅔ cup grape-nuts
¼ cup confectioners' sugar
2 tablespoons lemon juice

Chop together figs, raisins, dates and apricots. Add grape-nuts, confectioners' sugar and lemon juice and combine all ingredients lightly. Shape into rolls, 1½-inches in diameter, roll in sugar and slice. Makes approximately 3 dozen slices.

PASTEURIZE MILK IN 15 MINUTES *with the Esco* QWIK-WAY HOME PASTEURIZER

Now you can pasteurize a gallon of raw milk in just 15 minutes, as safely and easily as commercial dairies, while preserving the natural flavor and sweetness — with Esco's Qwik-Way Home Pasteurizer!

1 gal. size 5 qt. cap. **$27.95**

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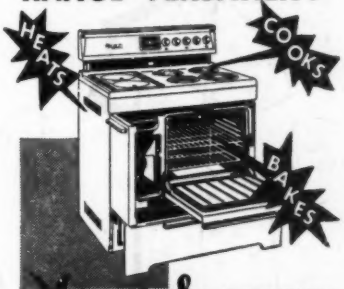

Monarch SINCE 1896 **36 INCH ELECTRIC COMBINATION**

Monarch electric combination range offers new all 'round kitchen efficiency—it cooks, bakes, heats. Features include stylish mantel back, full complement of automatic controls, giant 6726.9 cu. in. oven, super speed surface unit electric section, and heater section for added warmth and cooking.

built-in coal-wood or oil heater section

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4892—Twin charmers for the little miss. Sew dress and jumper with the same Printed Pattern. Child's Sizes 2, 4, 6, 8, 10. Size 6 dress: 2½ yards 35-inch fabric; ¼ yard contrast. 35¢

9318—Shapely step-in style with smartly curved seaming; notched collar and pockets. Printed Pattern in Half Sizes 14½-24½. Size 16½ takes 3½ yards 39-inch fabric. 35¢

4696
SIZES
12—20
40

4737
SIZES
36—48

4892
SIZES
2—10

9344
SIZES
12—20
40, 42

9318
SIZES
14½—24½

4830
SIZES
14½—24½

4737—Begin your day in a cotton print duster. Note tabbed pockets, inverted back pleat. Printed Pattern in Women's Sizes 36-48. Size 36 takes 5⅛ yards 35-inch fabric. 35¢

9344—Wear jumper with its own classic blouse or with other shirts and sweaters. Printed Pattern in Misses' Sizes 12-20; 40-42. Size 16 jumper: 3 yards 54-inch fabric; blouse 1⅜ yards 39-inch. 35¢

4830—Smart and slimming with tucked front-yoke, easy 8-gore skirt. Printed Pattern in Half Sizes 14½-24½. Size 16½ takes 4⅝ yards 35-inch fabric. 50¢

PATTERN 4830 is FIFTY CENTS.
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A GUIDE TO Lighting Your Home

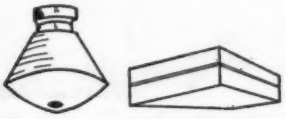
by A. V. KREWATCH

Every kitchen needs good general light

PART IV *When you enter a kitchen, the first thing you undoubtedly do is look for a good selection of useful equipment. Then you look for work centers with needed utensils and materials within easy reach, counter tops that are attractive and keep their "new look", cabinets and storages in which efficient arrangements come naturally, and floor coverings that are pleasing and easy-to-care-for. These are the things that make a kitchen an enjoyed part of every home. But, we often forget the one essential that helps make all such good facilities serve the family's need—that essential is good general light. Where would we be without it?*

GOOD GENERAL LIGHT is important in the kitchen. It is easy to have. Studies reveal that every homemaker needs over-all lighting throughout the room for safety, reading labels, seeing into drawers and cabinets, and completing other tasks. Thirty foot-candles of light will answer these needs. You may choose:

Incandescent Enclosed



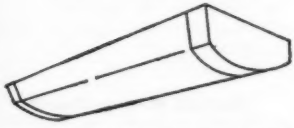
Minimum diameter—12" for 150 watt bulb; 14" for 200 watt bulb. In square unit use two 75 watt, three 60 watt, or four 40 watt bulbs.

Incandescent Open

Surface mounted or recessed with louvers; 150 or 200 watt silver bowl bulb. Open Pan-12" diameter for 150 watt; 14" for 200 watt, 3-4 bulbs.

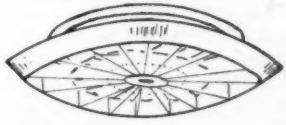
Shielding: Ceramic, enameled or opal glassware; louvers or egg crates used with silver bowl bulb fixtures. Clean suspended shades regularly.

Fluorescent Straight



Straight tube Homeline preferred. Use in fixture; two 48", 40 watt or four 24", 20 watt tubes.
Shield: Frosted glass or thin plastic preferred for appearance and comfort. Clean periodically.

Fluorescent Circline



Circline Warm White Tubes. In double unit use 40 watt plus 32 watt, or two 32 watt.
Shield: Shield preferred for better appearance but not essential. Keep shields clean.

**Member "Four-State Lighting Committee" consisting of representation from Agric. Extension Services of Univ. of Md., Penna. State Univ., Va. Polytechnic Inst., West Va. Univ., and Resid. Dept. of Potomac Edison Co.*

No. 2 National Orange Edition

JUNIOR PARTNERS

"I believe in the future of farming with a faith that is born not of words, but of deeds."
FFA Creed

Don has always maintained his ties with the FFA Chapter and the Young Farmer group. Here he consults with vo-ag teacher Vern Richter regarding a farm management decision.

He's Staked His Fortunes on Farming's Future

By RUSSELL V. STANSFIELD

As a member of the Watertown, Minnesota, High School FFA Chapter, young Donald Hoese firmly believed that there was a future for him in dairy farming. Based on a sound farming program of dairy cows, hogs, and crops, he was awarded the State Farmer Degree. That was in 1952.

Today, eight years later, Don Hoese can point with pride to his modern all-electric milking parlor and milkhouse, 30 head of high-producing dairy cows, and the 150-acre farm he operates. The farm is located in fertile dairy land near Mayer, Minnesota. This is certainly a far cry from his first FFA project, but for Don this is "only the beginning."

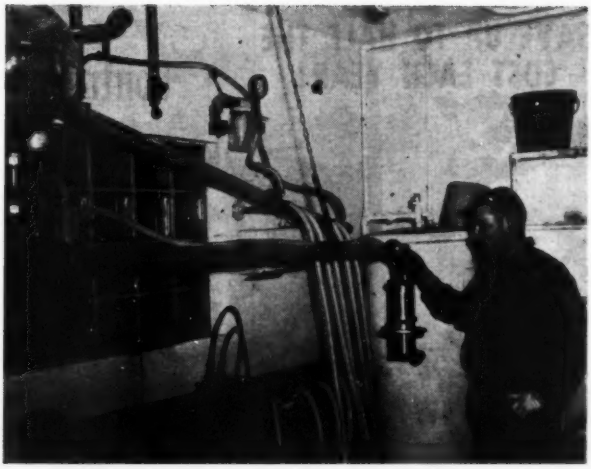
Does All Milking Himself

Figuring heavily in Don's accomplishments and future plans has been his wise and extensive use of electric power. He feels that his time is an important factor in good farm management, and electric equipment has made it possible for him to make the most efficient use of this time. In fact, Don manages the entire dairy operation, including all the milking and chores, with no outside help.

In the fall of 1958, Don decided to install a loose housing system. After careful consideration, he selected the double-five herringbone design for the milking parlor. Don believes the herringbone arrangement requires a minimum of time and labor. The speed with which he milks his herd—30 cows in 35 minutes—seems to substantiate his views.

Don's dairy herd management has not suffered because

Automatic washing is feature of Don's pipeline milking system. While pipeline is being washed, Don sweeps and washes down parlor.



100-lb. water pressure saves 26 minutes a day in milking parlor cleanup operation.

Tension on V-belt of ⅓ hp feed-auger motor is checked by Don. Pressure-switch-controlled augers fill hoppers in milking parlor below.

of his fast milking habits. "No time for hand stripping in this operation," he says. "With five units operating, it keeps me busy. Actually, I average a little more than one minute per cow, including washing the udders, feeding the concentrate, and the milking itself."

Mastitis Almost Eliminated

Since the milking vacuum is maintained at 10 and 11 pounds per square inch, mastitis infection has been practically eliminated. Last year Hoese's herd averaged 10,000 lbs. of milk with an average test of 3.85%. Butterfat production per cow averaged 385 lbs.

A strict schedule is maintained at chore time on the Hoese farm. Exactly 1½ hours are used, including feeding of grain and hay, milking and cleaning of parlor and equipment. Don reasons that much of this time is "fixed." Fixed time would not increase as the size of the herd is increased. He said, "I plan to expand the herd to at least 70 cows, and still do all the milking alone." Don's expansion plans include an airtight silo and mechanized silage feeding.

An example of a time-saving technique of which Don is very proud is the high-pressure pump which increases his water pressure in the milking parlor to more than 100 lbs. Operated by a 1 hp motor, this pump has reduced the time required to clean the milking parlor from 20 minutes to 7 minutes. That's a saving of 26 minutes each day!

Because of his early FFA training, Don always looks for guidance from his high school agriculture department. He consults frequently with vo-ag instructor Vern Richter, and participates in organized classes.

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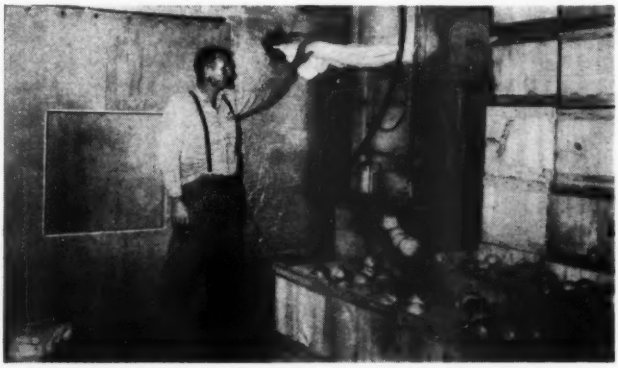
CORN SHELLERS HAMMER-MILLS FEED MIXERS

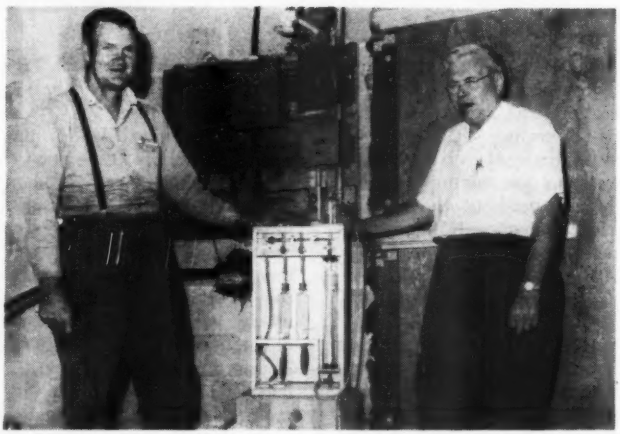
Controlled-Atmosphere Storage Keeps Apples Tree-Fresh Year-Round

By ALVA C. WEST

Early on the morning of March 29, 1959, Wainwright and Woodrow Scott entered a concrete block building on their East Lyme, Connecticut, fruit farm and opened one of the State's first Controlled Atmosphere (CA) apple farm storages. Result: Of the 6900 boxes of McIntosh apples stored in the new installation since Oct. 1, 1958, there was a loss of only 3%.



Refrigeration equipment is carefully examined by Wainwright Scott before the CA storage room is sealed for the season to safely keep apples.



Atmosphere analyzer between Scott (left) and author charts oxygen and carbon dioxide count inside storage. Analyzer is checked twice daily during storage.

The story behind the Scott family's search for the best method of keeping apples on their 110 acre farm encompasses a period of 15 years and includes the erection of three apple cold storages. The first was built in 1949, two others followed in 1950 and 1953 (total capacity: 20,000 boxes).

Spoilage Rate Was Too High

Before their erection, there was a disturbingly high rate of spoilage in fruit and vegetables. This problem of fast ripening was "eased" to some extent by the cold storages, but the Scott brothers thought they could do better. Hearing of the astonishing success of CA storage in New York and Massachusetts, the brothers decided it could work for them, too.

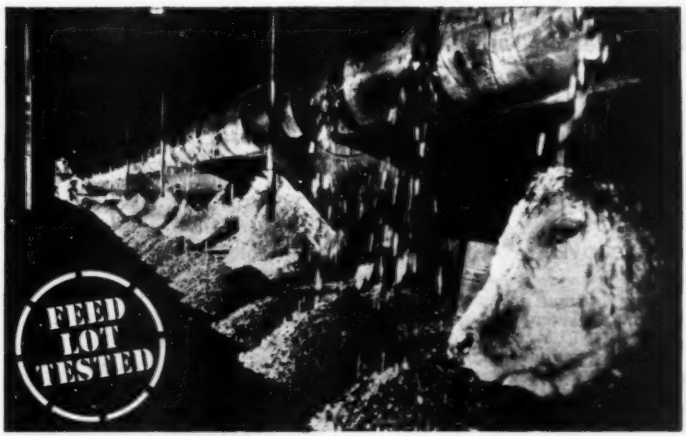
CA room specifications had to be exacting, since proper refrigeration must include reduced oxygen and above normal carbon dioxide concentrations. A room 30 feet wide, 32 feet long, and 15 feet high, with space for a combination scrubber and defusser was built. Storage requires 2 to 2½ cubic feet of volume for each box of apples stored. A reflector type of insulation and gas seal was used.

Room Heavily Insulated

The insulation U value was equivalent to three inches of cork in the floor, four inches in the walls and six inches in the ceiling. An additional room, holding a 7½ hp compressor, breather bag, caustic soda tank, controls and wiring was installed. An atmosphere analyzer instrument panel, used to measure carbon dioxide and oxygen in the atmosphere, was placed on the outside of the storage and checked at least twice a day. A temperature of 38° F, with a carbon dioxide range of 4.0 to 5.5% and oxygen range of 2.5 to 4.0% was constantly maintained.

Adhering to the rules of good CA storage—and in order to receive its maximum benefits—the Scott brothers loaded the room within a period of 10 days. Prior to loading, the room was cooled to 32° F and this temperature was maintained until the storage was fully sealed. When the room was opened, the temperature was lowered again to 32° F, the storage door opened, and the room permitted to "air out".

With the installation of the new CA storage, the Scott brothers plan to supply customers with McIntosh apples year-round. Both Wainwright and Woodrow feel that up-to-date methods, scientific planning, and mechanized electrical power are helping to make "Scotts Orchard" (begun in 1918 by their father, Walter, and mother, Lillian) a successful and profitable organization. □ □



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Entire Bates family pitches in on grading operation, in which dark meats and defects are picked out as the nutmeats travel along a belt conveyor.

On-Farm Walnut Processing

Walnuts and kilowatts may seem to have little in common. Walnut growers know better, especially if they process their own crops. Such an operation is the Bates Brothers Ranch, in San Diego County, California. There, in a strictly family operation, a ton of walnut meats is grown, processed and marketed each month. Cliff Bates, his wife and two sons make up the total labor force.

"Walnuts have been raised here on the ranch for almost 40 years," Mrs. Bates explains. "But it wasn't until after World War II that we began processing and marketing the nuts. We felt that by doing that we could get a part of that price spread between producer and our consumer—bakeries and candy manufacturers."

Electricity enters the life of a walnut early on the Bates ranch. It is used to pump the water that irrigates the grove.

After picking, processing begins with hulling and husking the nuts. This is a rough brushing process, powered by a 1 hp motor. Immediate drying is very important to keep good quality. The nuts are dried in a 3-ton bin, where 125° air is forced through them for 24 hours by a 3 hp blower. After drying, nuts are either sent directly to the cracker, or stored for future processing.

A 1 hp motor drives the cracker, which breaks the shell without damaging the meats. Then a machine separates the meats from the shells by literally floating the lighter shells away on a column of air. A 7½ hp blower, moving 6800 cfm, does this job.

Grading and inspection, a hand operation, is done by moving the nutmeats along on a conveyor belt, where the defectives and dark-colored ones are picked out. The others drop into 30-pound boxes.

The nuts that are sold in the shell are graded according to size, using an electric-powered drum with different size holes.

By processing their own walnuts, the Bates get an average of 8¢ per pound more than if they sold them through regular channels. "It simply wouldn't be possible without electric power. . . It's our cheapest and most efficient source of labor," Bates says.

HOWARD KEDDIE

QUESTIONS AND ANSWERS

Citizen's Band Radio

▶Q. *Are there any of these new "Citizen's Band" two-way short wave radios that can reach as far as 13 miles?*
M. D. H., Nebraska

▶A. Distance is the biggest drawback of "Citizen's Band" transceivers (transmitter and receiver combination). With an antenna of legal height, most manufacturers claim a reliable range of 5 to 10 miles. There are some which advertise a 20-mile range, however, and over flat, unobstructed country even greater ranges have been experienced. No operator's license is required. An FCC license must be obtained for the equipment itself on FCC Application Form No. 505. With this form the FCC issues call letters and grants authorization to use citizens band radio equipment. Such permission is granted only to U.S. citizens over 18 years old.

Replacing Overhead with Underground Wiring

▶Q. *The overhead wire to my barn 125 feet away has been giving me a lot of trouble in storms, even breaking off the support pole. Can I put wire in underground from the service entrance to the barn?*
L. T. R., Maine

▶A. Underground wiring on the farmstead is extremely practical, provided you use the right kind and size wire. Special underground feeder (UF) cable is made especially for this application, and is usually available in a variety of sizes from electrical or farm supply dealers.

Garbage Disposer Used with Septic Tank

▶Q. *We are building a new home that will be equipped with a septic tank. I would like to have an electric garbage disposer, but everyone tells me it can't be used with a septic tank. Is this true?*
Mrs. J. W. R., Illinois

▶A. It is perfectly all right to use a garbage disposer with a septic tank disposal system providing the tank size is increased by about 50% to take care of the extra load the disposer puts into the system. The smallest septic tank recommended for use with a garbage disposer is 750 gallons.

New low-cost Barn Cleaner

● Here's a real back-saver. Just push a button and in minutes your CLAY *Scotsman* Barn Cleaner will remove a day's accumulation of manure.

ECONOMICAL. The *Scotsman* quickly pays for itself in small or large herds. You unload directly into spreader, make trip to field, and be back in less time than you'd spend cleaning by hand. It's a piece of equipment you'll use every day of the year!

IT'S BUILT TO LAST. CLAYMORE Chain has heat-treated forgings, 50% more bearing area, and gives 50% more wear than most barn cleaner chain. Close-spaced paddles welded to links so they can't loosen. Totally enclosed motor is safe from corrosion.

INVEST ONLY 20%. That's all you need to install your Barn Cleaner under CLAY Purchase Plan. *This means you can put yours in now!*

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Chromalox Thermwire is easily applied indoors or out, wherever you need heat. It can be easily wrapped, buried in soil or concrete, imbedded in asphalt. Thermostats available for completely automatic operation.
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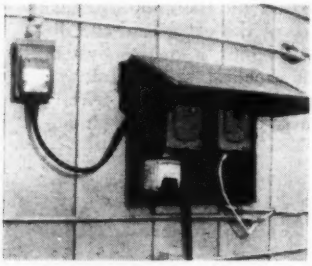
Regulate Silo Unloader with Ammeter

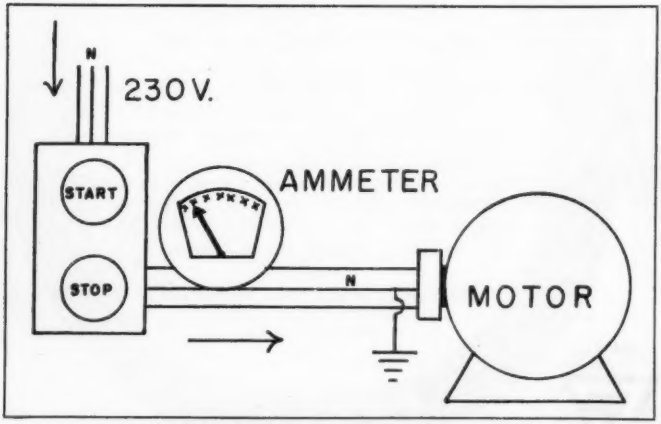
Silo unloaders are a necessary part of automatic electric farm choring equipment. When operated properly, they are designed to give many years of dependable, economical service.

Two factors, however, are usually encountered that will affect the life and performance of automatic silo unloaders. These are frozen silage and lack of uniform distribution of silage at filling time. The latter problem can and should be corrected at filling time. This is most easily done by using a simple silage distributor unit on the end of the silage blower pipe during the filling operation.

The other problem, that of frozen silage, can be handled satisfactorily by most silo unloaders if just a bit of care is exercised. It is important to not overload the unit excessively by lowering it too rapidly into the silage. To solve this problem, many silo unloader users have installed a meter as shown in the illustration. The meter is used as a gauge to tell the operator how much load is being put on the motor. By locating the meter near the manual depth adjustment crank, the operator can lower the unit just the right amount to properly load the motor. (Motor load is indicated by amperes and a mark on the ammeter will show full load amperage for the motor).



Ammeter is located adjacent to silo unloader switch and both are protected from weather by rain hood.



Suggested wiring circuit for ammeter on silo unloader. Ammeter need measure only current in one hot conductor.

ADVERTISERS

in this issue . .

Whenever you need further information about electrical equipment and appliances, you can depend upon the Manufacturers who are advertising in this magazine. We have indexed here for your convenience in alphabetical order the Manufacturers whose advertising is appearing in this December issue.

When writing to these Manufacturers be sure to mention you saw their advertising in ELECTRICITY ON THE FARM Magazine.

	Page
Automatic Feeding Systems Co.	31
The C. S. Bell Co.	30
Chore-Time Equipment, Inc.	32
Clay Equipment Corp.	33
Columbiana Pump Co.	24
Electronic Specialties Co.	25
KitchenAid Home Dishwasher Div., The Hobart Mfg. Co.	Inside Back Cover
Monarch Range Co.	25
F. E. Myers & Bro. Co.	Inside Front Cover
Oshkosh Filter & Softener Co.	32
Papec Machine Co.	17
The Patz Co.	10
Red Jacket Mfg. Co.	16
Ritchie Mfg. Co.	30
Smith-Gates Corp.	15
Sturges Heat Recovery, Inc.	30
Van Dusen & Co.	32
Edwin L. Wiegand Co.	33
Wincharger Corp.	24
Winpower Mfg. Co.	32
Zero Sales Corp.	11

If you are unable to get information about the particular equipment you require from our advertisers as listed above, our Reader Service Department will be glad to help you. As a reader of this magazine you are entitled to this information service free of cost.

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dishwashing's
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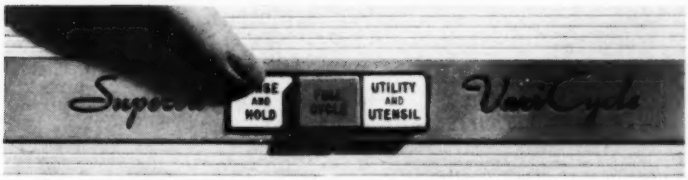

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FULL LOADS are now scrubbed twice by the KitchenAid power-wash system. "Full Cycle" includes two washes, three rinses, and Flo-Thru hot-air drying.

UTENSILS get their own individual treatment. The KitchenAid dual wash and triple rinse help soak away baked-on foods... ease scraping chores.

NEVER BEFORE a dishwasher that combines such convenience, capacity and washability—the new KitchenAid Superba VariCycle.

NEW KING-SIZE CAPACITY. New-design racks handle a whole day's tableware for a good-sized family. Two-position upper rack with quick-adjust dividers enables variable arrangements for big pots, pans, odd-shaped pieces.

DUAL DETERGENT CUP automatically releases the contents of each section for each wash. Rinsing Agent Dispenser helps dry spotlessly under any water conditions.

NEW LUXURIOUS LOOK with modern styling and wide choice of finishes, including *wood*. Look for the big, blue, lifetime wash arm that *scrubs* while others spray or shower. See your dealer or write: The Hobart Mfg. Co., KitchenAid Home Dishwasher Div., Dept. KEF, Troy, Ohio. In Canada: 175 George St., Toronto 2.

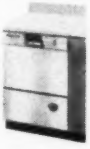
NEW SUPERBA VariCycle

Natural wood, stainless steel, coppers, white. Special woods and colors can usually be matched locally ...or finished with plastic laminates.

2 OTHER NEW DISHWASHER SERIES available in many models

NEW IMPERIAL

Every "full cycle" feature of the Superba is found in this model—including king-size capacity.



NEW CUSTOM

Real value for the economy-minded. Same KitchenAid wash-and-dry system. Capacity for ten.

there's a quality

KitchenAid

for every kitchen...every budget

FROM

THE SHAWINIGAN WATER AND POWER COMPANY

MONTREAL

TO M. PAUL MORIN, AGRONOME,
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GIVE BETTER... *Electrically*

If it's electric, she'll love it—and the same goes for the males on your gift list. And those who receive electric gifts enjoy them all year long, year after year. What more could any Santa do than give better . . . electrically?

Here's a handy gift list. Just fill in the names of those you want to please at Christmas.

MOTHER	FATHER	SISTER	BROTHER
Electric Range	Electric Tools	Electric Clock-Radio	Electric Hand Drill
Electric Clothes Dryer	Outdoor Floodlights	Electric Sheet	Electric Train
Automatic Electric Washer	Electric Livestock Feeding Equipment	Dressing Table Lamps	Table Radio
Electric Deep Fryer	Portable Electric Motor	Electric Sewing Machine	Electric Fan
Electric Fry Pan	Automatic Electric Livestock Waterer	Travel Iron	Hi-Fi Set
Electric Sauce Pan		Blender	Electric Welder
Electric Dishwasher		Barbecuer	Paint Sprayer

FOR THE FAMILY: Electric Water System and Heater • Electric Freezer
Television Set • Air Conditioner • Electric Space Heater • Electric Home Heating

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We are sending you this magazine so that you may know the many advantages your electric service provides.

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